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10/743,375	12/23/2003	Kiyohisa Ichino	Q79111	8962

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EXAMINER	
LIU, BEN H	

ART UNIT	PAPER NUMBER
2616	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/743,375	ICHINO, KIYOHISA	
	Examiner	Art Unit	
	BEN H. LIU	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,6,10 and 18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,6,10 and 18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This is in response to an amendment/response filed on April 22, 2008.

2. Claims 1, 6, and 10 have been amended.

3. Claims 2, 4, and 11-17 been cancelled.

4. Claim 18 has been added.

5. Claims 1, 6, 10, and 18 are currently pending.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Boström et al. (U.S. Patent 6,504,840).

For independent claim 1, Boström et al. discloses a transmission system comprising:

a sending device for converting higher-layer protocol data to continuous blocks of a fixed length, inserting idle blocks between the continuous blocks to match the sending rate to the

transmission rate of the transmission line, and transmitting *(see column 10 lines 4-9 and figure 8, which recite a sending node 100 including an idle slot generator)*;

at least one stage of relay devices for receiving the continuous blocks and the idle blocks *(see column 13 lines 13-22, which recite an intermediate node N2 similar to sending node 100 and receiving node 300 in switching mode between a source and destination node)*, discarding these idle blocks *(see column 11 lines 47-53, which recite an idle slot detector that discards idle slots)* and continuous blocks containing bit errors to extract only valid continuous blocks *(see column 2 lines 47-57, which recite a node that discards non-valid data)*, and then inserting idle blocks between the valid continuous blocks to match the sending rate to the transmission rate of the transmission line on a transmission side and transmitting to a prescribed transfer destination *(see column 10 lines 57-67, which recite an idle slot generator 190)*; and

a receiving device for receiving the continuous blocks and the idle blocks from the relay device of a final stage, discarding these idle blocks and continuous blocks containing bit errors to extract only valid continuous blocks, and reconstructing the higher-layer protocol data from the valid continuous blocks *(see column 11 lines 24-31, 47-53 and figure 9, which recite a receiving node 300 including an idle slot detector that discards the idle slots)*,

wherein when the higher-layer protocol data takes the form of frames, the sending device converts the frames to a fixed length *(see column 7 lines 34-45 and figure 2, which recite a frame structure with a fixed 125 microsecond length)* by adding null data to tail portions of the frames to make the frame length an integer multiple of a specified length if the length of the frames is not an integer multiple of the specified length *(see column 7 lines 54-60, which recite a guard band G added to the end of each frame)*, dividing the higher-layer protocol data into units

of the specified length, and adding to each unit of specified length a specified number of bits of type information indicating the position of that unit within the higher-layer protocol data *(see column 7 lines 34-45, 54-60 and figure 2, which recite a frame divided into 64 bit time slots wherein the slots are designated as S, C, D, or G slots indicating the position of the slot within a frame)*,

the receiving device reconstructs the higher-layer protocol data by performing a conversion that is the reverse of the conversion in the sending device *(see figure 9, which recite a receiver node that processes received, previously described frames)*,

the type information indicates that the unit of specified length contains one of higher-layer protocol data comprising a head portion of a higher-layer protocol frame, higher-layer protocol data comprising a middle portion of a higher-layer protocol frame, and higher-layer protocol data comprising a tail portion of a higher-layer protocol frame *(see column 7 lines 54-60 and figure 2, which recite a frame divided into 64 bit time slots wherein the slots are designated as S, C, D, or G slots indicating the position of the slot within a frame)*, and

the type information indicating the higher-layer protocol data comprising the tail portion of a higher-layer protocol frame comprises a plurality of type information corresponding to an amount of valid data in the tail portion *(see column 9 lines 11-26, which recite a slot P that indicates slots with non-valid data)*.

For independent claim 10, Boström et al. discloses a data transfer method for transmitting higher-layer protocol data in a transmission system that includes a sending device, at least one stage of relay devices, and a receiving device; the data transfer method comprising:

in the sending device, of converting higher-layer protocol data to continuous blocks having a fixed length; and matching sending rate to the transmission rate of the transmission path by inserting idle blocks between the continuous blocks having a fixed length and transmitting *(see column 10 lines 4-9 and figure 8, which recite a sending node 100 including an idle slot generator)*;

in the relay device, receiving the continuous blocks having a fixed length and the idle blocks from the sending device *(see column 13 lines 13-22, which recite an intermediate node N2 similar to sending node 100 and receiving node 300 in switching mode between a source and destination node)*; discarding the idle blocks *(see column 11 lines 47-53, which recite an idle slot detector that discards idle slots)* and continuous blocks having a fixed length containing bit errors and extracting only the continuous blocks having a fixed length that are valid *(see column 2 lines 47-57, which recite a node that discards non-valid data)*; and of matching the sending rate to the transmission rate in the transmission path by inserting idle blocks between the continuous blocks having a fixed length that are valid and transmitting to a prescribed transfer destination *(see column 10 lines 57-67, which recite an idle slot generator 190)*;

and in the receiving device, of receiving the continuous blocks having a fixed length and the idle blocks from a final stage relay device; discarding the idle blocks and continuous blocks having a fixed length containing bit errors and extracting only continuous blocks having a fixed length that are valid; and reconstructing the higher-layer protocol data from the continuous blocks having a fixed length that are valid *(see column 11 lines 24-31, 47-53 and figure 9, which recite a receiving node 300 including an idle slot detector that discards the idle slots)*,

wherein when the higher-layer protocol data takes the form of frames, the sending device converts the frames to a fixed length *(see column 7 lines 34-45 and figure 2, which recite a frame structure with a fixed 125 microsecond length)* by adding null data to tail portions of the frames to make the frame length an integer multiple of a specified length if the length of the frames is not an integer multiple of the specified length *(see column 7 lines 54-60, which recite a guard band G added to the end of each frame)*, dividing the higher-layer protocol data into units of the specified length, and adding to each unit of specified length a specified number of bits of type information indicating the position of that unit within the higher-layer protocol data *(see column 7 lines 34-45, 54-60 and figure 2, which recite a frame divided into 64 bit time slots wherein the slots are designated as S, C, D, or G slots indicating the position of the slot within a frame)*,

the receiving device reconstructs the higher-layer protocol data by performing a conversion that is the reverse of the conversion in the sending device *(see figure 9, which recite a receiver node that processes received, previously described frames)*,

the type information indicates that the unit of specified length contains one of higher-layer protocol data comprising a head portion of a higher-layer protocol frame, higher-layer protocol data comprising a middle portion of a higher-layer protocol frame, and higher-layer protocol data comprising a tail portion of a higher-layer protocol frame *(see column 7 lines 54-60 and figure 2, which recite a frame divided into 64 bit time slots wherein the slots are designated as S, C, D, or G slots indicating the position of the slot within a frame)*, and

the type information indicating the higher-layer protocol data comprising the tail portion of a higher-layer protocol frame comprises a plurality of type information corresponding to an

amount of valid data in the tail portion *(see column 9 lines 11-26, which recite a slot P that indicates slots with non-valid data).*

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 6 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boström et al. (U.S. Patent 6,504,840).

For independent claim 6, Boström et al. discloses a transmission system wherein higher-layer protocol data takes the form of 8B/10B code, the transmission system comprising:

a sending device for converting higher-layer protocol data to continuous blocks of a fixed length, inserting idle blocks between the continuous blocks to match the sending rate to the transmission rate of the transmission line, and transmitting *(see column 10 lines 4-9 and figure 8, which recite a sending node 100 including an idle slot generator)*;

at least one stage of relay devices for receiving the continuous blocks and the idle blocks *(see column 13 lines 13-22, which recite an intermediate node N2 similar to sending node 100 and receiving node 300 in switching mode between a source and destination node)*, discarding these idle blocks *(see column 11 lines 47-53, which recite an idle slot detector that discards idle slots)* and continuous blocks containing bit errors to extract only valid continuous blocks *(see column 2 lines 47-57, which recite a node that discards non-valid data)*, and then inserting idle

blocks between the valid continuous blocks to match the sending rate to the transmission rate of the transmission line on a transmission side and transmitting to a prescribed transfer destination *(see column 10 lines 57-67, which recite an idle slot generator 190)*; and

a receiving device for receiving the continuous blocks and the idle blocks from the relay device of the final stage, discarding these idle blocks and continuous blocks containing bit errors to extract only valid continuous blocks, and reconstructing the higher-layer protocol data from the valid continuous blocks *(see column 11 lines 24-31, 47-53 and figure 9, which recite a receiving node 300 including an idle slot detector that discards the idle slots)*,

the receiving device reconstructs the higher-layer protocol data by performing a conversion that is the reverse of the conversion in the sending device *(see figure 9, which recite a receiver node that processes received, previously described frames)*.

For claim 6, Boström et al. disclose all the subject matter of the claimed invention with the exception wherein the sending device and method converts the 8B/10B code to the blocks having a length of 133 bits by, for data code, fetching data portions of 8 bits, and for control code, representing control information by 4 bits and adding 4 bits of information indicating the position of the next control code, resulting in 8 bits, and, adding five bits of information indicating the position of the next control code to the header of every 16 codes. However, Boström et al. discloses using 8B/10B encoding to encode 8 bit octets to generate blocks having a length of 80 bits *(see column 11 lines 8-23)*. The resulting blocks can be a data slot D that contain octets of data or a control slot C that contains control bits *(see column 7 lines 45-53 and figure 2)*. The block can also be a synchronization S or guard band G block *(see column 7 lines 54-60 and figure 2)*, which indicate where the slot belongs relative to the entire frame. The

block can also be bit pattern P block that indicate which slots contain valid data such as control codes *(see column 9 lines 11-26)*. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to modify the 80 bit blocks as taught by Boström et al. to include more octets per block to produce a block of length 133 bits. The motivation for including more octets per block is to improve the efficiency of the system by transmitting more data with less overhead information.

For independent claim 18, Boström et al. discloses a transmission method, comprising:

converting higher-layer protocol data to continuous blocks of a fixed length, inserting idle blocks between the continuous blocks to match the sending rate to the transmission rate of the transmission line, and transmitting *(see column 10 lines 4-9 and figure 8, which recite a sending node 100 including an idle slot generator)*;

receiving the continuous blocks and the idle blocks at a relay device *(see column 13 lines 13-22, which recite an intermediate node N2 similar to sending node 100 and receiving node 300 in switching mode between a source and destination node)*, discarding these idle blocks *(see column 11 lines 47-53, which recite an idle slot detector that discards idle slots)* and continuous blocks containing bit errors to extract only valid continuous blocks *(see column 2 lines 47-57, which recite a node that discards non-valid data)*, and then inserting idle blocks between the valid continuous blocks to match the sending rate to the transmission rate of the transmission line on a transmission side and transmitting to a prescribed transfer destination *(see column 10 lines 57-67, which recite an idle slot generator 190)*; and

receiving the continuous blocks and the idle blocks from the relay device of a final stage, discarding these idle blocks and continuous blocks containing bit errors to extract only valid

continuous blocks, and reconstructing the higher-layer protocol data from the valid continuous blocks *(see column 11 lines 24-31, 47-53 and figure 9, which recite a receiving node 300 including an idle slot detector that discards the idle slots)*,

wherein the receiving the continuous blocks and the idle blocks from the relay device of a final stage comprises reconstructing the higher-layer protocol data by performing a conversion that is the reverse of the conversion in the sending device *(see figure 9, which recite a receiver node that processes received, previously described frames)*.

For claim 18, Boström et al. disclose all the subject matter of the claimed invention with the exception wherein the sending device and method converts the 8B/10B code to the blocks having a length of 133 bits by, for data code, fetching data portions of 8 bits, and for control code, representing control information by 4 bits and adding 4 bits of information indicating the position of the next control code, resulting in 8 bits, and, adding five bits of information indicating the position of the next control code to the header of every 16 codes. However, Boström et al. discloses using 8B/10B encoding to encode 8 bit octets to generate blocks having a length of 80 bits *(see column 11 lines 8-23)*. The resulting blocks can be a data slot D that contain octets of data or a control slot C that contains control bits *(see column 7 lines 45-53 and figure 2)*. The block can also be a synchronization S or guard band G block *(see column 7 lines 54-60 and figure 2)*, which indicate where the slot belongs relative to the entire frame. The block can also be bit pattern P block that indicate which slots contain valid data such as control codes *(see column 9 lines 11-26)*. Thus, it would have been obvious to the person of ordinary skill in the art at the time of the invention to modify the 80 bit blocks as taught by Boström et al. to include more octets per block to produce a block of length 133 bits. The motivation for

including more octets per block is to improve the efficiency of the system by transmitting more data with less overhead information.

Response to Arguments

10. Applicant's arguments with respect to 1, 2, 4, 8, and 10-17 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. *(see form PTO-892).*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BEN H. LIU whose telephone number is (571)270-3118. The examiner can normally be reached on 9:00AM to 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571)272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ricky Ngo/
Supervisory Patent Examiner, Art Unit 2616

BL